

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ALABAMA
SOUTHERN DIVISION**

UNITED STATES OF AMERICA,)	
Plaintiff,)	
)	
ALABAMA ENVIRONMENTAL)	
COUNCIL,)	
)	
Plaintiff-Intervenor)	
v.)	Civil Action No. 2:01-CV-152-VEH
)	
ALABAMA POWER COMPANY,)	
)	
Defendant.)	

MEMORANDUM OPINION

This case is presently before the Court on Defendant Alabama Power Company's ("Alabama Power") Motion in Limine to Exclude on *Daubert* Grounds (doc. 292). Plaintiffs filed a response (doc. 319) to which Alabama Power replied (doc. 349). On December 29, 2010, the Court granted Plaintiffs until January 11, 2011, to set out their position on whether or not Gorgas Unit 10 is a baseload unit as delineated in *United States v. Cinergy Corp.*, 623 F.3d 455 (7th Cir. 2010). (Doc. 351). Plaintiffs filed a response to this Order (doc. 360) and a statement of additional evidence (doc. 366) to which Alabama Power replied (doc. 367). A hearing was held on this motion on February 18, 2011. At this time, the Court will only address Alabama Power's Motion insofar as it relates to Mr. Robert H. Koppe ("Koppe") and

Dr. Ranajit Sahu (“Sahu”). For the reasons explained below, Alabama Power’s Motion in Limine relating to Koppe and Sahu is due to be granted.

I. STANDARD

While Federal Rules of Evidence 401 and 402 provide for the liberal admission of relevant evidence, Rules 403, 702, and 703 mitigate against this general policy by giving trial courts the discretion to exclude expert testimony that is either unreliable or irrelevant. *See Allison v. McGhan Med. Corp.*, 184 F.3d 1300, 1310 (11th Cir. 1999). The Eleventh Circuit has held that scientific expert testimony is admissible when:

(1) the expert is qualified to testify competently regarding the matters he intends to address; (2) the methodology by which the expert reaches his conclusion is sufficiently reliable as determined by the sort of inquiry mandated in *Daubert*; and (3) the testimony assists the trier of fact, through the application of scientific, technical, or specialized expertise, to understand the evidence or to determine a fact in issue.

Cook v. Sheriff of Monroe Cnty., 402 F.3d 1092, 1107 (11th Cir. 2005) (quoting *United States v. Frazier*, 387 F.3d 1244, 1260 (11th Cir. 2004)). The proponent of the expert testimony bears the burden of laying the proper foundation for the admission of the expert testimony, and admissibility must be shown by a preponderance of the evidence. *Id.*

In *Daubert v. Merrell Dow Pharmaceuticals Inc.*, 509 U.S. 579 (1993), the

Supreme Court imposed a special duty upon trial judges pursuant to Rule 702, requiring the judge to act as a “gate-keeper” and ensure that scientific evidence is both reliable and relevant before it is admitted. *Id.* at 589. The *Daubert* Court set out four nonexclusive factors which should be considered by a trial court assessing the reliability of expert scientific testimony under Rule 702: (1) whether the theory or technique is capable of being tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) whether the technique has a high known or potential rate of error; and (4) whether the theory has gained general acceptance within the scientific community. *Daubert*, 509 U.S. at 593-94. Other factors which have been considered in conducting a *Daubert* analysis include “reliance on anecdotal evidence (as in case reports), temporal proximity, and improper extrapolation (as in animal studies).” *Allison*, 184 F.3d at 1312.

A *Daubert* inquiry focuses on the principles and methodology underlying expert opinion testimony, not on the conclusions they generate. *Id.* (citing *Daubert*, 509 U. S. at 595). However, testimony based solely on the experience of the expert is not admissible. *Rider v. Sandoz Pharm. Corp.*, 295 F.3d 1194, 1197 (11th Cir. 2002). The court must be sure that the expert “employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.” *Id.* (quoting *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 157 (1999)).

Accordingly, the proponent of the testimony does not have the burden of proving that the testimony is scientifically correct, but that it is reliable. *Allison*, 184 F.3d at 1312. However, the conclusions reached and the methodology used to reach them are not “entirely distinct from one another.” *Joiner*, 522 U.S. at 146. Often, experts will extrapolate from already existing data. *Id.* “But nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.” *Id.* This scientifically valid connection between the opinion and the facts also has been called “analytical fit.” *Rider*, 295 F.3d at 1197.

II. BACKGROUND

A. Initiation of the Action

On August 7, 1980, the Environmental Protection Agency (“EPA”) issued regulations implementing the New Source Review (“NSR”) provisions of the Clean Air Act. 45 Fed. Reg. 52675 (1980). Under those regulations, existing sources of air pollution were not required to install the state-of-the-art pollution controls mandated of new sources. *Ala. Power Co. v. Costle*, 636 F.2d 323, 400 (D.C. Cir. 1979). The grandfathering of existing sources was not a perpetual immunity from the NSR requirements; existing plants are required to install modern pollution controls if they

undergo any physical or operational change that would result in a significant net emissions increase. 42 U.S.C. § 7475(a); Ala. Admin. Code r. 335-3-14-.04(1)(a).

The Attorney General of the United States, acting at the request of the Administrator of the EPA and through the United States Attorney for the Northern District of Alabama, filed this action against Alabama Power, a wholly owned subsidiary of The Southern Company (“Southern”).¹ (Doc. 1). The EPA originally sued Alabama Power and others on November 12, 1999, in the Northern District of Georgia, Case No. 99CV2589. That action was dismissed against Alabama Power on the grounds of lack of *in personam jurisdiction*, and refiled in this District on January 12, 2001.²

The EPA alleged that Alabama Power constructed new, or made modifications to, existing, coal-fired, steam driven electrical power generating plants Alabama Power operates in Alabama in violation of the Clean Air Act. (Doc. 127 at ¶ 1). The EPA alleged that Alabama Power commenced maintenance, repair, and replacement activities between 1985 and 1997 that were not “routine,” but were “major

¹ After obtaining leave of court, the EPA filed an Amended Complaint on February 17, 2005. (Docs. 119-121).

² On May 29, 2001, the Court granted the parties’ joint stipulation permitting the Alabama Environmental Council (“AEC”) to intervene. (Doc. 13). The Court refers collectively to the EPA and the AEC as “Plaintiffs.”

modifications” of those plants. *Id.* at ¶¶ 64-67; *see* Ala. Admin. Code r. 335-3-14-.04(2)(b). The EPA alleged that Alabama Power failed to obtain NSR permits in violation of the Prevention of Significant Deterioration (“PSD”) provisions of the Act, 42 U.S.C. §§ 7470-92, and that Alabama Power violated Alabama’s State Implementation Plan (“SIP”). (Doc. 127 at ¶¶ 70-83). The EPA asserted that, as a result of Alabama Power’s operation of the power plants following this construction and modification without the proper permits, massive amounts of sulfur dioxide (“SO₂”) and nitrous oxides (“NO_x”) have been, and are still being, released into the atmosphere. *Id.* at ¶ 2. Of the units initially at issue, the parties have resolved or dismissed all claims other than the following: Barry Unit 2 (replacement of reheater); Gorgas Unit 10 (balanced draft conversion); and Greene County Unit 2 (replacement of primary reheater). All of these units are coal-fired units

B. Operation of the Southern System

Southern Company consists of five system utilities: Alabama Power, Georgia Power Company, Gulf Power Company, Mississippi Power Company, and Southern Power Company. (Doc. 370, Tr. 128). Southern Company Services, owned by Southern Company, manages the generating fleet of those five utilities. *Id.* at 128-29. The intercompany interchange contract, an operating agreement which is approved and accepted by the Federal Energy Regulatory Commission, binds the five utilities

together to operate as a single electric utility. *Id.* at 129.

Southern Company determines eight days in advance which units to commit or have online. *Id.* at 131-32. When a unit comes online and is synchronized to the computerized system, it must operate at a level that is at least its minimum operating level to prevent it from becoming unstable. *Id.* at 134, 147. The typical standard for a unit's minimum operating level is 40 percent of its maximum capacity. *Id.* at 148. The coal-fired units on the Southern system were all designed to run most efficiently at or close to their maximum capacity. *Id.* The difference between each unit's maximum capacity and its actual generation level is termed spinning reserves. *Id.* at 135. Southern Company is required under Federal Energy Regulatory Commission reliability standards to carry 600 megawatts of spinning reserves at all times.³ *Id.* at 167-70.

The demand on the system is constantly changing. *Id.* at 149. Southern Company uses a computerized process called automatic generation control to determine in six-second increments whether the generation of the system is equal to

³ The reliability standards require Southern Company to carry 1200 megawatts of operating reserves at all times. (Tr. 168). Pursuant to the reliability standards, half of those operating reserves must be online and spinning. *Id.* at 169. The other half can be met with quick start units - units that can be brought online within ten minutes. *Id.* Southern Company has quick start units which are "basically combustion turbines." *Id.* These units are relatively very expensive to operate. *Id.*

the demand on the system. *Id.* at 142-43. If demand on the system increases, Southern Company uses the principles of economic dispatch to determine how much power to obtain from the spinning reserves of each unit in use to meet the increased demand in such a fashion as to minimize cost to its customers. *Id.* at 130. If demand decreases, economic dispatch would tell the company which units to decrease use of in order to minimize cost to its customers. *Id.* at 140-41. Units that respond to these changes in demand are termed load-following units. *Id.* at 141. Gorgas Unit 10, Barry Unit 2, and Greene County Unit 2 have always been operated as load-following units and are kept on automatic generation control. *Id.* at 141-42, 151.

Southern Company's coal-fired units have a minimum time that they must be taken off the system before they can come back online. *Id.* at 151. These times range from 24 hours for the smaller coal-fired units to 72 hours for the larger coal-fired units. *Id.* at 152. Once a coal-fired unit is brought online, it must be left online for a certain number of hours before it is taken off the system in order to stabilize. *Id.* at 154-55. There is no maximum amount of time that a unit may be kept online. *Id.* at 155. When these units were designed it was part of the design feature to recognize that the units cannot be taken off the system at night and brought back online during

the day.⁴ *Id.* at 152. All the units at issue here are coal-fired units and have a minimum downtime of between 24 to 72 hours. *Id.* at 152-53.

Southern Company has six units, all nuclear, that are not operated on the automatic generation control system. *Id.* at 174. They are loaded to their full capacity whenever they are available and left there “24 hours a day, seven days a week,” because they are the cheapest units in the Southern system. *Id.* at 174-75. Coal-fired units are used to do load-following service because they are more expensive to operate. *Id.* at 175.

III. ANALYSIS

A. Plaintiff’s Burden of Proof

The Court has previously explained that Plaintiffs bear the burden of proving, to state a *prima facie* case, that the projects at issue were “major modifications,” meaning “a physical change that resulted in a net emissions increase.” (Doc. 198 at 39); *see Env’tl. Def. v. Duke Energy Corp.*, 549 U.S. 561, 569 (2007). This requirement is based on the Alabama SIP rules applicable in this case, which provide that a pre-construction permit is only required for a “major modification . . . that would result in a significant net emissions increase.” Ala. Admin. Code r. 335-3-

⁴ Southern Company started adding natural gas-fired combined cycle technology around 2000 which, unlike the coal-fired units, are capable of being shut down at night and brought back online the next morning. (Tr. 152).

14.04(2)(b). “Since the PSD program requires a pre-construction permit in the event of a significant net emissions increase, it is necessary for the utility [] to make a pre-project projection of what actual emissions will be before construction begins.” *Env’tl Def. v. Duke Energy Co.*, No. 1:00CV1262, 2010 WL 3023517, at *5 (M.D.N.C. July 28, 2010); (citing *United States v. Ohio Edison Co.*, 276 F. Supp. 2d 829, 865 (S.D. Ohio 2003)).

Under the applicable rule, a “[n]et emissions increase” means an “increase in actual emissions . . . from a particular physical change.” Ala. Admin. Code r. 335-3-

14.04(2)(c). “[A]ctual emissions” means

the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the given dat[e] and which is representative of normal source operation. . . Actual emissions shall be calculated using the unit’s actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

Ala. Admin. Code r. 335-3-14.04(2)(u)(1). Further, the Plaintiffs must show that the pre-project projected net emissions increase is greater than the significance threshold.

The significance threshold for both NO_x and SO₂ is 40 tons per year. Ala. Admin. Code r. 335-3-14-.04(2)(w).

B. The Koppe/Sahu Methodology

Koppe and Sahu collaborate to provide the heart of the Plaintiffs' case on emissions. Koppe, a power plant reliability engineer, performed the first part of the analysis, estimating how the projects would affect future generation, while Sahu, an environmental permitting engineer, performed the second part of the analysis, converting the increased generation into increased emissions.

Koppe's portion of the analysis can be broken down into two parts: (1) determining the effect of the project on the unit's availability to generate electricity, and (2) determining how much of the increased availability would result in increased generation.⁵ (Expert Report of Koppe of Dec. 14, 2009, Doc. 319 Ex. 5 at 2).

With respect to Barry Unit 2 and Greene County Unit 2, Koppe analyzed historical operating data and records to determine the amount of outage hours caused by the problematic component and the condition of the rest of the unit before the project. *Id.* at 7-8. Based on that information, Koppe then exercised his engineering judgment as to the amount of additional hours that each unit would be available to operate in the future because of the projects. *Id.* at 9-10.

⁵ Availability is a universally accepted measure in the electric utility industry of the percentage of time that a unit is ready and able to generate electricity. (Expert Report of Robert Richwine of Feb. 26, 2010, Doc. 319 Ex. 35 at 5). A unit is considered to be available when it is not shut down in forced outages, maintenance outages, or planned outages. *Id.*

In the case of the Gorgas Unit 10 balanced draft conversion, there was not a single component that had deteriorated nor was there a single component that was causing a considerable amount of outage time. *Id.* at 36. Because of the different effect of balanced draft conversion on availability, the method that Koppe used to calculate the other projects' effects on availability would not apply. *Id.* Instead, Koppe looked at other Southern Company units that had been converted, calculating the average fractional reduction in the forced and scheduled outage hours per year that had occurred from pre-project to post-project at those units. *Id.* Koppe then applied these average fractional reductions to the pre-project outage hours at Gorgas Unit 10 during the baseline periods selected by Sahu, resulting in the total expected reduction in outage hours per year. *Id.*

To estimate how much of this additional availability would actually be used, Koppe calculated utilization factors, also known as the output factor, for each unit.⁶ *Id.* at 10. Although Koppe concluded that Alabama Power reasonably should have expected that demand for each unit's electricity would increase after the projects,

⁶ A utilization factor is a measure of the fraction of the total potential generation that a unit actually produces, on average, when operating. (Doc. 319 Ex. 5 at 10). The specific measure of utilization used by Koppe is termed the output factor by the industry. *Id.* The output factor for a unit is the ratio of the amount of power the unit actually generated to the amount it could have generated had it always operated at full power whenever it operated at all. *Id.* at 22.

Koppe instructed Sahu to use the historical output factor in his final calculations to isolate the effects of the projects from the effects of demand growth. *Id.* The formula that Koppe used to determine increased generation multiplies the change in availability resulting from the project by the output factor by the maximum output from the unit. (Tr. 17-18).

Sahu then converted the increased generation Koppe had calculated into increased emissions using standard emissions factors for each unit. (Sahu Deposition, Doc. 292 Ex. 15 at 25-26). Sahu concluded that the results of his calculations showed that Alabama Power reasonably should have expected emissions increases greater than the significance threshold for NSR. (Expert Report of Sahu of Dec. 14, 2009, Doc. 319 Ex. 39 at Attach. G).

C. The *Cinergy* Decision

In *United States v. Cinergy Corporation*, 623 F.3d 455 (7th Cir. 2010), the Seventh Circuit, in an opinion by Judge Posner, addressed this same methodology.⁷ The court found that the methodology used predicts that an increase in a unit's annual capacity will result in a proportionately equal increase in its output, describing it as stating, "If capacity increased by 10 percent, generation would increase by 10

⁷ The part of the analysis undertaken here by Koppe was done in *Cinergy* by Richard Rosen. The methodology used by Rosen and Sahu is the same as that used by Koppe and Sahu. (Koppe Deposition, Doc. 292 Ex. 17 at 13).

percent.” *Id.* at 460. Recognizing that utilities operate power generation equipment in three general ways - - baseload, cycling, and peaking - - the court determined that the methodology used was reliable only when used with “baseload” electric generating units. *Id.* at 459. The court described baseload equipment as “operating virtually continuously,” whereas cycling equipment is “operated on a regular or fairly regular basis, but not continuously.” *Id.* Determining that the plant at issue was operated as a cycling facility because it did not operate at full capacity, the court held that the experts’ testimony should not have been admitted. *Id.* at 460. This Court finds the reasoning of the Seventh Circuit persuasive and agrees that the Koppe-Sahu methodology only works if the unit is operated as a baseload unit.

Although the parties point the Court to various sources for a correct definition of the term “baseload,”⁸ the Court finds that the definition of relevance in this case is the one used in *Cinergy*, namely a facility that operates “virtually continuously” at “full capacity.” *See id.* at 459-60. The Court’s finding that this is the definition of

⁸ At the hearing, Koppe testified that there are two ways in which the term “baseload” is commonly used. (Tr. 25). He stated that one is a relatively broad definition, which is that the unit operates for most of the time when it is available. *Id.* He also recognized that there is a narrower definition that is sometimes used, which is that not only does the unit operate most of the time when it is available, but it generally operates at full power when it is available. *Id.* Koppe testified that in his report he employed the broader definition of baseload. *Id.* In contrast, Wayne Moore, an expert witness for Alabama Power, testified that he utilized the narrower definition of baseload in his expert report. *Id.* at 125-26.

baseload as used by the *Cinergy* court is bolstered by Judge Posner's citation to *Northern Indiana Public Service Co. v. Colorado Westmoreland, Inc.*, 667 F. Supp. 613, 629 (N.D. Ind. 1987), when describing the three ways in which utilities operate power generation equipment. *Cinergy*, 623 F.3d at 459-60. In that case, Chief Circuit Judge Easterbrook, sitting by designation, defined a baseload unit as meaning, in industry parlance, "a unit run constantly at maximum efficient output - - - in other words, supplying the "base load" of the system, while other generators are brought on line or spun up to meet peak loads." *N. Ind. Pub. Serv. Co.*, 667 F. Supp. at 629. *Colorado Westmoreland* is of particular import because Judge Easterbrook sat on the panel in the *Cinergy* decision. Also lending support to this definition of baseload as it pertains to *Cinergy* is the testimony of Mr. Alan M. Hekking ("Hekking"). Hekking testified as an expert witness on behalf of the United States in *Cinergy*.⁹ (Doc. 367 Ex. 3). In *Cinergy*, Hekking testified on direct examination that baseload units were the ones that ran "full power all day long; so all 24 hours, all the time," whereas he described cycling units as "during peak demand, you'll go to full capacity. At night when people turn their lights off and go to bed, those plants will roll back to maybe half capacity, maybe even a third, but they cycle during the course of 24

⁹ Plaintiffs also have offered Hekking as an expert witness in the instant case on the matter of whether the projects at issue were routine maintenance, repair, and replacement. (Doc. 319 Ex. 47).

hours up and down depending on the demand.”¹⁰ *Id.* at 170-71.

¹⁰ At the hearing, Plaintiffs objected to the introduction of Hekking’s testimony in the *Cinergy* trial as inadmissible hearsay. (Tr. 242). Alabama Power argued that the prior testimony was admissible as an admission by a party-opponent under Federal Rule of Evidence 801(d)(2). *Id.* The Court directed Plaintiffs to file a brief by February 25, 2011, explaining why the prior testimony was hearsay not subject to an exception. *Id.* at 248. Plaintiffs agreed to file the brief by that date. *Id.* On February 25, 2011, Plaintiffs filed a brief on a separate issue in which they stated that they did not intend to file a brief on the admissibility of the Hekking testimony from the *Cinergy* trial. (Doc. 371 at 3). Alabama Power filed a brief on the Hekking testimony in *Cinergy* on March 4, 2011, arguing that the testimony was admissible under Federal Rule of Evidence 801(d)(2)(C) and (D). (Doc. 372 at 7-8).

Federal Rule of Evidence 801(d)(2) provides that statements are not hearsay if the statement is offered against a party and is “(C) a statement by a person authorized by the party to make a statement concerning the subject, or (D) a statement by the party’s agent or servant concerning a matter within the scope of the agency or employment, made during the existence of the relationship[.]” Although the parties have not cited to a case from the Eleventh Circuit on the issue, the Ninth Circuit has held that an expert witness’ trial testimony in an earlier bellwether trial on the same subject was an admission of a party-opponent under Rule 801(d)(2)(C). *In re Hanford Nuclear Reservation Litig.*, 534 F.3d 986, 1016 (9th Cir. 2008). With respect to Rule 801(d)(2)(D), the former Fifth Circuit has held that prior deposition testimony of an expert hired by the defendant was an admission of the defendant. *Collins v. Wayne Corp.*, 621 F.2d 777, (5th Cir. 1980); *see Bonner v. City of Prichard*, 661 F.2d 1206, 1209 (11th Cir. 1981) (en banc) (adopting as binding precedent all decisions of the former Fifth Circuit handed down prior to October 1, 1981). Although the court did not cite Rule 801(d)(2)(D), it did analyze the admissibility of the testimony under agency principles as set out in the rule. *Id.* at 780-82. Because the expert had been hired by the defendant to investigate and analyze the bus accident at issue, the court found that the expert’s report on his investigation and his deposition testimony in which he explained his analysis and investigation was an admission of the defendant. *Id.* at 782.

The *Cinergy* definition of baseload addresses not only the amount of time that a unit is operated but also the level of output that the unit achieves. The reason that the Koppe-Sahu methodology works for baseload units and not cycling units is because the presumption that an increase in a facility's annual capacity will result in a proportionately equal increase in its output is only valid if the facility is operated virtually continuously at the highest level of output possible.¹¹ The restrictions on the

Hekking was employed to provide an expert opinion in *Cinergy*. The same Plaintiff employs him in this case to provide an expert opinion on the same provisions of the Clean Air Act. This Court finds the Hekking testimony in *Cinergy* admissible under both Sections (C) and (D) of Rule 801(d)(2).

Alternatively, the Court finds that, by declining to brief the issue, the United States has abandoned its objection to such testimony. *See Flanigan's Enters., Inc. v. Fulton Cnty.*, 242 F.3d 976, 987 n.16 (11th Cir. 2001) (holding that a party waives an argument if the party "fail[s] to elaborate or provide any citation of authority in support" of the argument); *Ordower v. Feldman*, 826 F.2d 1569, 1576 (7th Cir. 1987) (stating that an argument made without citation to authority is insufficient to raise an issue before the court) (cited in *United States Steel Corp. v. Astrue*, 495 F.3d 1272, 1287 n.13 (11th Cir. 2007)).

¹¹ Indeed, Koppe conceded as much.

Q. And Mr. Koppe, perhaps you can explain that last concept. How does the use of the units relate to the output factor?

A. For units that spend a lot of time [one or several months annually] on reserve shutdown, the use of the unit could include less time on reserve shutdown. For units that already spend very little time on reserve shutdown, if the use of the unit is going to increase, that is - - that means that the output factor is increasing. Once you're running the unit all the time it's

application of this methodology are explained by the Seventh Circuit in *Cinergy*:

[T]he Wabash plant is therefore operated as a cycling rather than a baseload plant and so does not operate at full capacity. There can be no presumption that an increase in its annual capacity would result in a proportionately equal increase in its output. Suppose a modification increased the plant's annual electrical generating capacity by 10 percent, but because of limited predicted use of standby capacity the output of the modified plant was unlikely to increase at all (just not to fall), and therefore its emission of pollutants was unlikely to increase.

Id. at 460.

D. The Units as Issue Were Not Baseload

1. Barry Unit 2

Prior to the replacement of the reheater at Barry Unit 2 in 1997, the unit averaged 36 days per year in reserve shutdown. (Doc. 319 Ex. 5 at 58). A unit is in reserve shutdown when the unit could have operated but was shutdown because it was not needed. *Id.* at 28. In the 24-month time period preceding the replacement, Barry Unit 2 had an actual output factor of 78.7.¹² *Id.* at 60. Thus, during the period

available, the only way to use it more is to run it at higher power levels.

(Tr. 33) (emphasis added).

¹² With respect to the issue of whether the units were baseload, Plaintiffs focus on the unit's capacity factor. (Doc. 360 at 6). Koppe defines capacity factor in his expert report as "the actual generation for the time period, divided by maximum possible generation (what the unit could have produced had it run

prior to the replacement, Barry Unit 2 was not operating 9.9 percent of the time because it was not needed and was operating at 78.7 percent of its total capacity during the times that it was in operation. The Court finds that Barry Unit 2 was not a baseload unit as it did not operate “virtually continuously” at “full capacity.”¹³ *See Cinergy*, 623 F.3d at 459-60. As Barry Unit 2 was not operated as a baseload unit, Koppe’s and Sahu’s opinion with respect to the replacement of the reheater at Barry Unit 2 will be excluded.¹⁴ *See id.* at 460.

continuously at full power).” Thus capacity factor does not exclude the time period that a unit spends in forced shutdowns, which includes the time that the unit is not in operation due to the faulty machinery that the project is repairing. Output factor, the ratio of the amount of power the unit actually generated to the amount it could have generated had it always operated at full power whenever it operated at all, combined with a calculation of the time a unit spends in reserve shutdown, gives a picture of how the unit would operate if there were no mechanical limitations. Thus, the Court finds that output factor is a more accurate measure than capacity factor of whether or not the unit was operated as a baseload unit.

¹³ It is not necessary here for the Court to determine at what precise percentage of its capacity a unit must operate in order to be considered baseload. There can be no question that a unit, designed to run most efficiently at or near its maximum capacity, that does not utilize 22.3 percent of its total potential generation when it is operating is not operating at “full capacity.” The Court also notes that, although it is employing the definition of baseload as used in *Cinergy*, Barry Unit 2 does not meet the standard required of the broader definition of baseload as used by Koppe in his expert report which requires a unit to operate most of the time it is available.

¹⁴ At the hearing, Koppe testified that the formula he and Sahu used could be applied to a cycling unit if three preliminary findings were made: (1) the

additional available hours at the unit will actually be used post-project, (2) the unit will not spend more time in reserve shutdown post-project than it had pre-project, and (3) the output factor for the unit will not decrease post-project. (Tr. 40-43). Koppe did not explain these limitations on the formula in his report. Koppe testified that he had established that these hypotheses were correct for the units at issue in *Cinergy*, but that the *Cinergy* court apparently did not understand that he had investigated these hypotheses. *Id.* at 66.

Koppe stated that the difference in applying the formula to a baseload unit versus a cycling unit was that you do not have to “dig as hard” because “the fact that the unit will be used all the time when it’s available is a no brainer because the unit is used all the time when it’s available.” *Id.* at 44-45. He stated that “[t]he conclusions or assumptions that go into the methodology have to be verified in different ways or more thoroughly depending on how the unit is operated. But assuming that the assumptions are facts, the methodology applies equally well to any kind of unit.” *Id.* at 71. Koppe testified that he investigated into all three areas for each unit at issue and determined that he could apply the formula to each unit, agreeing with the Court’s characterization that he had “investigated far enough to determine that an investigation was not – further investigation was not necessary.” *Id.* at 67. Koppe admitted that he had not adequately investigated at least one of these three preliminary areas if the unit had spent a lot of time in reserve shutdown and thus was cycling and not baseload under his broader definition of the term. *Id.* at 67-68.

Daubert does not permit the Court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert. *Joiner*, 522 U.S. at 146. Here, Koppe stated that he investigated “enough” to determine that “further investigation was not necessary” in order to apply the formula to the units at issue. At the same time, he admitted that he had not investigated far enough if the units had spent a lot of time in reserve shutdown. It is unclear how far in this spectrum of investigation one must go to apply the formula. Koppe says he has gone far enough, but the Court’s gatekeeping function requires more than simply “taking the expert’s word for it.” *United States v. Frazier*, 387 F.3d 1244, 1261 (quoting Fed. R. Evid. 702 advisory committee’s note (2000 amends.)). Therefore, the Court finds that the formula is only applicable to the units at issue if they are

2. Greene County Unit 2

Koppe states, without giving a specific figure, that Greene County Unit 2 spent “little time” in reserve shutdown during the pre-project period.¹⁵ (Doc. 319 Ex. 5 at 131 n.328). In the 24-month time period preceding the replacement of the primary reheater, Greene County Unit 2 had an actual output factor of 78.7. (Doc. 329 Ex. 5 at 125). Thus, during the period prior to the replacement, Greene County Unit 2 was operating at 78.7 percent of its total capacity during the times that it was operating. Even if Greene County Unit 2 operated “virtually continuously,” it did not operate at

operated as baseload units as defined in *Cinergy*. The Court notes that in their petition for a rehearing, the *Cinergy* plaintiffs also made the argument to the Seventh Circuit that the methodology at issue was applicable to both baseload and cycling units. (Doc. 367 Ex. 4 at 11-14). On December 29, 2010, the petition for rehearing was denied.

As the Court has previously stated, Barry Unit 2 does not meet the standard required of the broader definition of baseload as used by Koppe in his expert report. Therefore, even if the formula at issue could be applied to a cycling facility, Koppe has not done “enough” investigation to apply it to Barry Unit 2.

¹⁵ In his expert report, Koppe does not state a specific amount of time that Greene County Unit 2 spent in reserve shutdown. (Doc. 319 Ex. 5 at 131, 131 n.328). At the hearing, a chart was presented by the United States which indicated that Greene County Unit 2 spent .80% of the time it was available in reserve shutdown in 1989 prior to the project. A different chart prepared by Koppe and presented by the United States at the hearing showed that, in the year before the project, Greene County Unit 2 spent .50% of the time it was available in reserve shutdown. (Tr. 53). In either event, these charts are consistent with Koppe’s testimony of “little time.”

“full capacity.” Thus, Greene County Unit 2 was not operated as a baseload unit and Koppe’s and Sahu’s opinion with respect to the replacement of the primary reheater at Greene County Unit 2 will be excluded. *See Cinergy*, 623 F.3d at 459-60.

3. Gorgas Unit 10

Koppe states, without giving a specific figure, that Gorgas Unit 10 spent “little time” in reserve shutdown during the pre-project period.¹⁶ (Doc. 319 Ex. 5 at 131 n.328). In the 24-month time period preceding the balanced draft conversion, Gorgas Unit 10 had an actual output factor of 82.1. (Doc. 329 Ex. 5 at 102). Thus, during the period prior to the replacement, Gorgas Unit 10 was operating at 82.1 percent of its total capacity during the times that it was operating. Even if Gorgas Unit 10 operated “virtually continuously,” it did not operate at “full capacity.”¹⁷ Thus, Gorgas

¹⁶ In his expert report, Koppe does not state a specific amount of time that Gorgas Unit 10 spent in reserve shutdown. (Doc. 319 Ex. 5 at 131, 131 n.328). At the hearing, Koppe testified that he found that Gorgas Unit 10 had spent some time in reserve shutdown prior to the balanced draft conversion. (Tr. 88). A chart was presented during the direct examination of Koppe which showed that Gorgas 10 had no reserve shutdown in the year prior to the balanced draft conversion and was in reserve shutdown 7.9% of the time it was available in the year two years prior to the balanced draft conversion.

¹⁷ Without setting a precise percentage of its capacity at which a unit must operate in order to be considered baseload, the Court finds that there can be no question that a unit designed to run most efficiently at or near its maximum capacity that does not utilize 17.9 percent of its total potential generation is not operating at “full capacity.”

Unit 10 was not operated as a baseload unit and Koppe's and Sahu's opinion with respect to the balanced draft conversion at Gorgas Unit 10 must be excluded. *See Cinergy*, 623 F.3d at 459-60.

IV. CONCLUSION

Accordingly, for the reasons stated above, Alabama Power's Motion in Limine relating to Koppe and Sahu is due to be granted. Specifically, and consistently with the Seventh Circuit's opinion in *Cinergy*, the Court finds that the methodology employed by Koppe and Sahu is not valid when applied to units that are not operated as baseload units and that none of the units remaining at issue in this case were operated as baseload units during the relevant time periods. A separate order will be entered.

DONE and **ORDERED** this the 14th day of March, 2011.



VIRGINIA EMERSON HOPKINS
United States District Judge